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From Disposable Education to Acting in the World as a Human in the Time of AI

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Keywords

Generative models, responsibility, epistemology, sustainability, Bildung, deep learning

Abstract

This contribution presents two perspectives: one based on AI expertise and the other on the importance of knowledge as human knowledge. The latter focuses on the purpose of education by revisiting Alexander von Humboldt's concept of *Bildung* as the main purpose of education. Resisting the shifting to radically pragmatic models of education, without *Bildung*, in recent decades, in the Global North which develops a system of disposable education that focuses on training a workforce for the market. Concerned by the production of disposable knowledge and assessments, with the sole goal of achieving good grades and securing employment, we see Generative AI, as mirroring this functionalist and economist vision of society, revealing strongly the limits of this paradigm. This article first explains how automatic learning, the foundation of generative AI, works. Second, we shall discuss human deep learning, as opposed to surface learning showing how it is required to develop as a person in the *Bildung* perspective. Third, we highlight this first intuition that AI reveals the functioning of our societies and move beyond, with an art of questioning in philosophy.

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1. From automatic learning to generative AI

The driving force behind the development of artificial intelligence is machine learning. As is the case with many other concepts in the field of computing, the fundamental concept of machine learning was first proposed by Alan Turing in 1950. Turing proposed that to build an intelligent machine, it would be more effective to build it in the image of a child than in that of an adult. By giving the machine the ability to learn, we would make it an intelligent machine.

“ Instead of trying to produce a programme to simulate the adult mind, why not rather try to produce one which simulates the child's? If this were then subjected to an appropriate course of education one would obtain the adult brain. Presumably the child-brain is something like a notebook as one buys it from the stationers. Rather little mechanism, and lots of blank sheets. (Mechanism and writing are from our point of view almost synonymous.) Our hope is that there is so little mechanism in the child-brain that something like it can be easily programmed. The amount of work in the education we can assume, as a first approximation, to be much the same as for the human child. (Turing, 1950 #4272 456).

To clarify the process in a simple manner, a machine learning algorithm begins with data. It identifies patterns and regularities within data, subsequently developing a set of rules that can be applied to new data to predict a class or score that this new data will be assigned with.

A significant challenge in machine learning is the ability to compare different algorithms, with the aim of improving an algorithm to achieve a superior outcome compared to another, or to perform better than humans. To define this 'better', it is useful to define a mathematical function that can be used to quantify the accuracy of the set of rules in question, or the error committed. However, a surprising conceptual leap can be made here: all that is required is to attempt to optimise the mathematical function. For instance, to identify

the set of rules that minimises the error. This then becomes a straightforward analysis problem: to find R such that $f_e(R)$ is a minimum. Partial derivative calculations are highly effective in this context.

This means that based on the data you provide in your everyday life as Internet users, when you are provided with course recommendations, these rely exclusively on a mathematical analysis of functions.

Actually, it is not surprising that mathematics brings an answer. Vladimir Vapnik who provided major theoretical contributions of machine learning in his book *Statistical learning theory* (Vapnik, 1998 #4276), explains why this trick works, based on mathematical characterisation. This model is very useful and its qualities are not to be questioned in a non-human related topic. For human education, this model reduces education to something measurable conducing some scholars to compare a university transcript with a grocery receipt.

Interestingly, in 2002 in the United States the No Child Left Behind Act is passed as public law (107-110) with four principles: Accountability for results; Local control and flexibility; Expanded parental choice; Use of research-based instruction that works. From this time onwards, teachers have had less control over the curriculum and started to teach for the test, i.e. surface learning. It is also at that time that evidenced-based research is passed by law, excluding de facto all research conducted in non-positivist epistemologies (St. Pierre, 2006 #3781).

2. Bildung: the purpose of education

Universities today are said to be based on the model of Von Humboldt, with both teaching and research. What seems to have been forgotten though is that the purpose of education in such a model, at its origins, was *Bildung*.

“ The concept of Bildung brings together the aspirations of all those who acknowledge – or hope – that education is more than the simple acquisition of knowledge and skills, that it is more than simply getting things ‘right,’ but that it also has to do with nurturing the human person, that it

has to do with individuality, subjectivity, in short, with ‘becoming and being somebody’ (Deimann, 2013 #4246, 192-193, citing Biesta, 2002 #4277).

Bildung is the purpose of education. It is an end in itself, with teaching and research serving as the means to achieve it.

“ It is important to stress that Bildung is a goal in itself and should therefore not be utilised or exploited to reach external goals. Consequently, Bildung stands in stark contrast to the concept of qualification. Being qualified refers to an instrumental state, which is achieved in order to serve society and only thereby himself or herself (Deimann, 2013 #4245, 15).

When deep learning was first mentioned, it was as an opposition to surface learning. This was in the 1980s stemming from research on the conceptions of learning amongst students conducted by Ference Marton. Table 1 captures characteristics of both surface and deep learning.

| Deep learning | Surface learning |
|--|---|
| Takes a broad view | Takes a narrow view |
| Looks for meaning | Relies on rote learning |
| Focuses on the concepts and arguments to solve the problem | Focuses on the formula to solve the problem |
| Relates new knowledge to previously learnt knowledge | Focuses on learning unrelated bits of a task |
| Relates knowledge across modules/courses | Information is memorized solely for assessment |
| Relates theory to practice | Theory is not reflected upon in real life |
| Evidence and argument between theories is developed | No cross referencing between theories |
| Emphasis is student centered | Emphasis is external, i.e. <i>assessment driven</i> |

Table 1: (Walker, 2012 #4274) p. 904: Compare and contrast deep learning with surface learning (based on Ramsden, 1992).

In reference to the concept of Bildung, the highest levels of deep learning are concerned with developing as a person (Figure 1).

The Six Conceptions of Learning



Figure 1: The six conceptions of learning according to (Marton, 1984, 1997 #4278), retrieved from (CollectiveOfStudents, 2013 #4275)

Purposes of education vary a lot according to paradigms, times and places. For instance, “learning about the world to act upon it” draws on a mechanistic paradigm whereas “learning to become with the world around us” draws on a holistic paradigm (Salonen, 2023 #4113, 618). Both use surface and deep learning. Since the 2000s, by law in the USA, the main educational model is, by design, driven to nurture the mechanistic paradigm. This includes learning to reproduce. This also includes disposable knowledge and assignments (Wiley, 2016 #3462). The current system, although placed in a learner-centred discourse, foregrounding 21st century skills such as critical thinking, actually focuses on earning good grades to get a job. The aim is to reproduce instead of taking risks and being creative (Jhangiani, 2024 #4279).

3. AI: an eye opener

Since ChatGPT arrived in November 2022, the educational landscape is trying to take position and find acceptable ways of using this disruptive and disrupting technology. ChatGPT is based on machine learning. It uses the mathematical functions outlined above to predict what the next word in the

sentence most probably is. And this prediction is called intelligence, artificial intelligence.

One thing ChatGPT and other similar tools are highlighting is learning as reproducing and learning as a measurable output taking the form of exams and grades. It worries institutions because reproducing with quality is now accessible to each and every learner.

When AI was used to rank letters of recommendation and this ranking resulted in a highly discriminatory selection in favour of white men, the general reaction was to accuse AI of being biased. A more detailed analysis revealed that while AI could increase bias, it was in fact already present in the data. An optimistic view, then, is to see AI acting as a revealer. AI makes biases visible, especially those that are not readily accepted.

The advent of ChatGPT has raised concerns about assessment and more specifically continuous assessment. It is now evident that AI has a role to play alongside traditional methods, such as pencils and erasers (it may even be the case that AI has replaced pencils and erasers). Here again, AI reveals a problem that was already present: somehow, ChatGPT embodies the democratization of cheating with the sole objective of getting good grades.

AI, which is said to function on deep-learning, in the sense of machine learning here, actually encourages learners to engage in surface learning, completely forgetting the purpose of education stated in terms of developing as a person.

From an institutional perspective, in our recent history, hijacking Bildung, from an end in itself to a means to produce employers through the education system, comes from the 1940s and 1950s. In those years several supranational organisations were created to promote education and scientific research in education (e.g. the International Association for the Evaluation of Educational Achievement, OECD, NATO). The economic refocusing of education was also adopted by UNESCO, which, in 1957 added an economic objective to its initial goal to working towards a better world through education. UNESCO recommended that countries allocate 5% of their GDP towards education to support development. The purpose of education was

thus oriented towards stimulating economic progress, which is completely wrong with regard to *Bildung*. Technicians of education progressively replaced philosophers and historians of education (Rohstock, 2015 #3474; Laot, 2015 #3473). Today, researchers acknowledge this dearth of a body of philosophical knowledge in education and call for an urgent re-introduction of worldwide philosophies (Tesar, 2022 #3776).

4. Wisdom to move forward?

Although those responsible for developing AI systems, such as Geoffrey Hinton, express regret at the consequences of their creations, acknowledging insights that AI provides for our societies could be a preliminary step towards reorienting the system in a more humane direction.

Humans should remain centre-stage and *Bildung* should retrieve its position of compass in higher education. Educating with wisdom might be a way of addressing current challenges.

Any such wisdom philosophy should aim to preserve “ the academic freedom of students as neophyte academic skeptics who possess a developing capacity to think critically about collective societal issues and respond with actions in favor of the common good. This developing wisdom philosophy should seek to promote the core democratic tenets of critical pedagogy and complexity/systems thinking, allowing students to approach systemic issues through an increased understanding of and capacity to map out complex societal problems, within an ingrained moral/ethical responsibility to seek out and work cooperatively towards actionable solutions. In effect, wisdom philosophy in the age of AI education must be aimed towards the development of theoretically/practically wise students whose understanding of significant subject matter coalesces within a moral and ethical imperative to deliberate and engage in democratic efforts that bring about positive societal change (Baehr 2012; Peters, 2024 #4268).

Two points are to be highlighted from this citation. First, the mastery of subject-knowledge which relates to deep learning and, as corollary, the capacity to ask relevant questions. And second the concept of responsibility which was explicited elsewhere in terms of care (Class, Accept. #4237).

5. From the art of questioning to responsibility

Asking a question in philosophy is an art. It has a certain number of requirements as outlined below, which, once again reach out to deep learning. We quote here the original French:

“ Une question peut être dite philosophique dans sa formulation lorsqu'elle est universelle, posée à tout et à chaque humain. Lorsqu'elle est ouverte, susceptible de plusieurs réponses, donc discutable, peut-être même parfois sans réponse (C'est ce que F. Galichet nomme son « indécidabilité »). Lorsqu'elle demande de surseoir à une réponse spontanée et immédiate, de prendre le temps d'une réflexion individuelle, et peut-être d'une discussion collective, tant les réponses ne vont pas de soi. Lorsqu'elle porte sur un problème de sens concernant la condition humaine : la question de la connaissance (Que puis-je savoir ?), la question de l'action, éthique (Que dois-je moralement faire ?), ou politique (Comment s'organiser justement ?), la question de l'esthétique (Créer une oeuvre d'art ou contempler la beauté de la nature ou une oeuvre). Une question philosophique peut donc se poser dans l'un des champs de la philosophie : métaphysique et ontologie, épistémologie, éthique (philosophie morale), politique (philosophie politique), esthétique. On peut aussi le dire de la façon suivante : une question est philosophique lorsqu'elle pose comme un problème (une difficulté) notre relation à nous-même, à autrui, à l'État, à la nature. Ou notre rapport aux valeurs qui peuvent donner sens à notre vie : la vérité, le bien, le juste, le beau... (Tozzi, 2022 #4273) p.6.

With generative AI, we talk about the art of prompting which resembles the art of asking a question in philosophy. Prompting is the new way of accessing knowledge and it depends on two variables. The first is the mastery of the subject-matter which will ensure the capacity to assess the answer received. The second is the mastery of a formal process to get the most out of algorithms and datasets (Masse, 2024 #4280).

Acting responsibly and with wisdom is related to both these variables. The concept of responsibility has been framed in terms of subjectivity, power, free will, cause, agency and accountability from Aristotle to Kant through to Ricoeur (Ricoeur, 1994 #4215). In legal terms, responsibility initially referred to the individual obligation to repair damage, with the focus being on a fault that had occurred in the past. Over time, the concept of responsibility evolved to encompass the future, with the emphasis shifting from the act itself to the consequence of one's actions (Raffoul, 2018 #4217). Responsibility is thus reported upfront into preventive approaches guided by a heuristics of fear and downstream by potential destructive effects of our action (Ricoeur, 1994).

Alternatives exist: based on a semantics of respect, care and concern rather than the former semantics of authorship, subjectivity and accountability, responsibility becomes synonymous of caretakers with Jonas.

Where it becomes really interesting is when you go back to the Latin etymology *respondere*, crossing it with the art of questioning. *Respondere* indicates that responsibility is foremost a response, an answer. Taking the responsibility for the final piece produced with the help of AI may thus be seen as a response within an overall frame of care.

The challenge is to demonstrate both the capacity to master the subject matter and the capacity to reuse knowledge acquired in order to create new knowledge. This reuse may occur in two ways: directly if it has been developed through deep learning approaches or indirectly through the use of generative artificial intelligence. It is imperative to exercise caution when prompting others. Prompting without first mastering the subject matter will inevitably result in the production of flawed and untraceable knowledge that appears to be recognised knowledge. Consequently, to avoid such highly

misleading knowledge, prompting with wisdom and responsibility should become the norm.

6. To conclude: can openness be a lever?

Openness may represent a lever to paradigm change and may retrieve *Bildung*. It is to be grasped between the two ends of the continuum that it spans: on one hand, understanding it from an object-oriented viewpoint, and on the other hand, understanding it as a process that connects both humans and non-humans. The first refers to:

“Understanding of Openness as sharing is predicated on an *object-oriented* view of science, where the availability of commodified, stable, tradeable resources is what determines how researchers use those objects to obtain new knowledge”.

The second refers to:

Philosophy of openness predicated on a *process-oriented* view, whereby research is understood first and foremost as an effort to foster collective agency, grounded on intimate forms of relationality and trust, among widely diverse individuals and groups – an agency that is often enacted through recourse to various technologies, shared interpretations of research outputs and collaborations with non-human agents” (Leonelli, 2023 #4161, 43).

Openness is seen as a lever to break with current practices of surface learning, disposable knowledge and other monstrous moral hybrids (Jacobs, 1994 #4083). Jacobs explains that any human society needs two forces: the guardian and the trading. Each is ruled with specific values, for instance, for the guardian syndrome, some values are shunning trade, being obedient and disciplined or respecting hierarchy. The equivalent values for the trading syndromes are shunning force, being honest and competing. Monstrous moral hybrids happen when values from both syndromes are mixed. For instance, the role of editors, be it in scholarly articles or in textbooks has been targeted

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as problematic because editors are part of the trading syndrome but do not compete with honesty when they pass agreements with states for example.

Thus, reconnecting with the essentials of the model of the vast majority of our universities to reconnect with *Bildung* seems a priority. Reconnecting with the purpose of the creation of Internet and the World Wide Web, i.e. to connect researchers worldwide, is a priority. In addition, two ways to move forward are suggested. The first is that education as a domain commits to reintroduce one of the disciplines it comes from, namely philosophy. Philosophy is important because it acts at the level of paradigm (Sterling, 2021 #3968). Philosophy is important because, through the art of questioning, it can provide a bridge to address AI in education at the substance level, with wisdom.

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8. Short biographies

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